

ABSTRACT

5 The present invention provides a method of preparation for diamond, graphite or
mixtures of diamond and graphite by reduction of CO or CO₂. Said method comprises a
step of contacting an active metal capable of reducing a carbon source into elementary
carbon with carbon source (such as CO and/or CO₂ and/or their origin) under conditions
suitable to reduce the carbon source to elementary carbon in the course of a reduction
10 reaction. After the raw diamond or mixtures of diamond and graphite thus obtained are
subjected to intensive heat treatment with perchloric acid, pure diamond granules are
obtained. The present method employs relatively low reaction temperature and pressure and
the facilities needed in the method are simple and easy to operate. Diamond finally obtained
has good crystallinity and free of impurities with granule size of several hundred
15 micrometer. In addition, the present invention makes use of the industrial by-product of CO
and CO₂ which not only turns wastes into valuables and is low in cost, but also improves
the environment and thus possesses both good social benefits and economical benefits.